



# *MI FluFocus*

## **Influenza Surveillance and Avian Influenza Update**

**Bureau of Epidemiology  
Bureau of Laboratories**



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### ***New updates in this issue:***

- **Michigan:** Influenza activity continues to be very low and sporadic.
  - **National:** Influenza activity continues decreasing; no states reporting widespread or regional activity.
  - **International:** Pandemic influenza transmission is most active in parts of West and Central Africa.
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### ***\*\*\*2009 Influenza A (H1N1) virus Updates\*\*\****

On April 2, MDCH updated guidance for healthcare providers, local health departments and laboratories regarding influenza surveillance, reporting and testing for the upcoming summer and fall. These documents are now available at the websites listed below.

Please continue to reference the MDCH influenza website at [www.michigan.gov/flu](http://www.michigan.gov/flu) for additional 2009 H1N1 information. Local health departments can find guidance documents in the MI-HAN document library. In addition, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at [http://www.michigan.gov/mdch/0,1607,7-132-2945\\_5103-213906--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html).

### ***\*\*\*Influenza Surveillance Reports\*\*\****

**Michigan Disease Surveillance System:** The week ending April 24<sup>th</sup> showed a similar number of aggregate influenza reports and individual influenza and 2009 novel influenza cases compared to the previous week. All indicators were slightly lower than levels recorded during the same period in 2009.

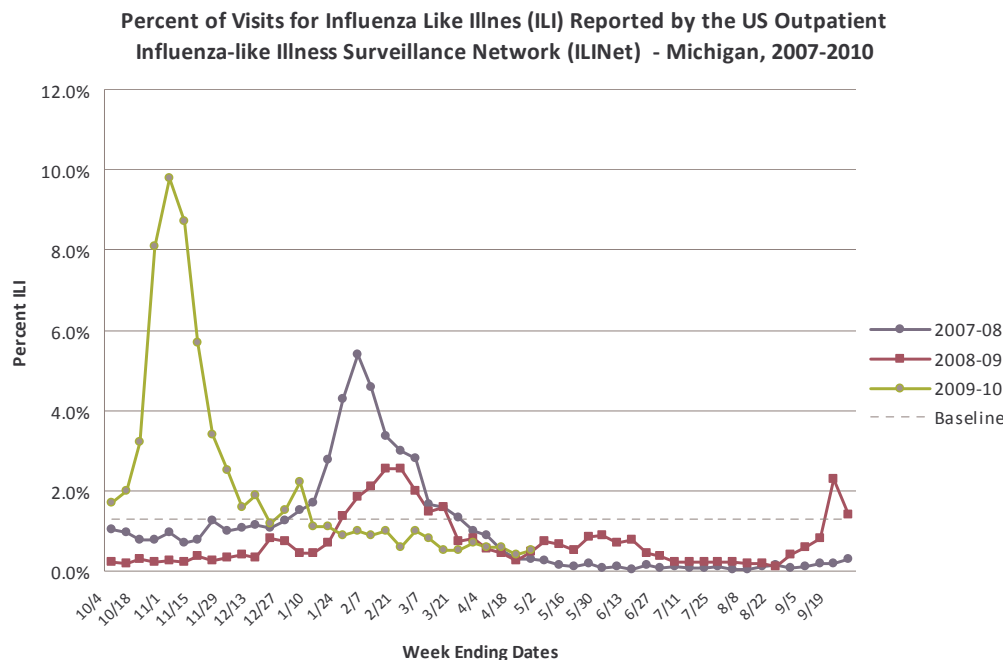
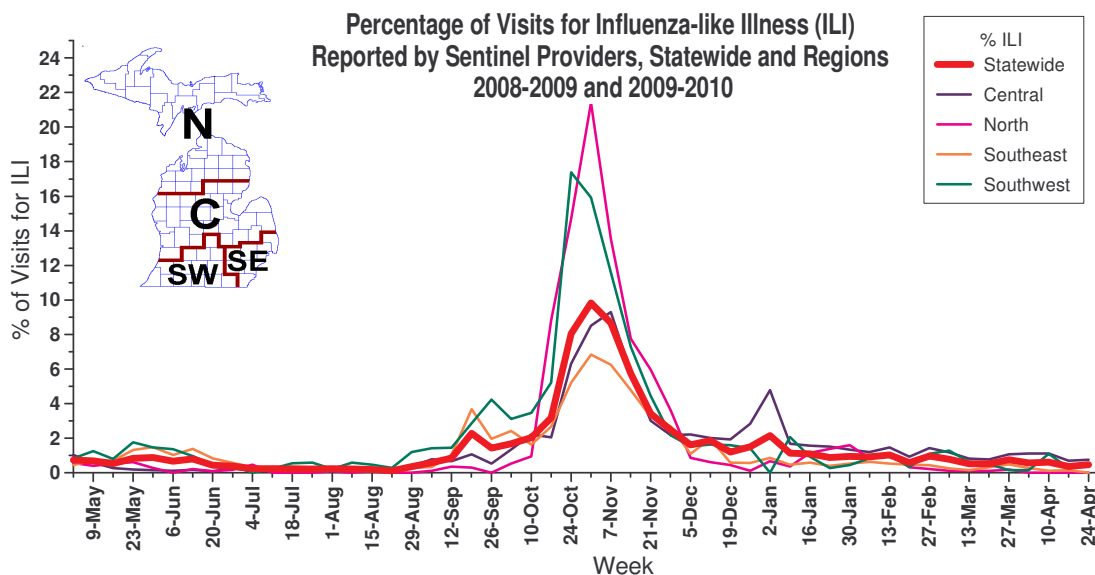
During April 18-24, 2010, 3867 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 2137 hospitalizations and 78 deaths associated with influenza have been reported since September 1, 2009. This report is updated every Tuesday by 5:00 pm and is accessible at "Current H1N1 Activity" on the website <http://www.michigan.gov/h1n1flu>.

**Emergency Department Surveillance:** Emergency department visits from constitutional and respiratory complaints decreased slightly from the levels seen the previous week. Constitutional and respiratory complaints are slightly lower compared to the same reporting period last year. In the past week, there was one constitutional alert in the SW Influenza Surveillance Region, and two respiratory alerts in the C(1) and N(1) Influenza Surveillance Regions.

**Over-the-Counter Product Surveillance:** Over the past week, OTC product sales of chest rubs, cough/cold aids, pediatric electrolytes and thermometers held steady with the previous week's levels. All indicators are consistent with levels seen during the identical reporting period in 2009.

**Sentinel Provider Surveillance (as of April 29):** During the week ending April 24, 2010, the proportion of visits due to influenza-like illness (ILI) slightly increased to 0.5% overall; activity continued to remain below baseline levels (1.3%). 33 patient visits due to ILI were reported out of 7,135 office visits. 24 sentinel sites provided data for this report. Activity slightly increased in one surveillance region: Southwest (0.4%); remained the same in two regions: Central (0.7%) and North (0.0%); and decreased in the Southeast (0.0%) region. Please note that these rates may change as additional reports are received.

As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or [CarltonC2@michigan.gov](mailto:CarltonC2@michigan.gov) for more information.



**Laboratory Surveillance (as of April 24):** During April 18-24, MDCH Bureau of Laboratories identified no influenza isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 610 influenza isolates:

- 2009 Influenza A (H1N1): 609
- Influenza B: 1

For the week ending April 24<sup>th</sup>, 10 sentinel laboratories reported. One lab reported sporadic influenza A activity (C), while all other labs reported no influenza A activity. Zero labs reported influenza B activity. Two labs reported sporadic levels of RSV positives (C, N).

**Michigan Influenza Antigenic Characterization (as of April 29):** One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

**Michigan Influenza Antiviral Resistance Data (as of April 29):** Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at <http://www.cdc.gov/H1N1flu/recommendations.htm>.

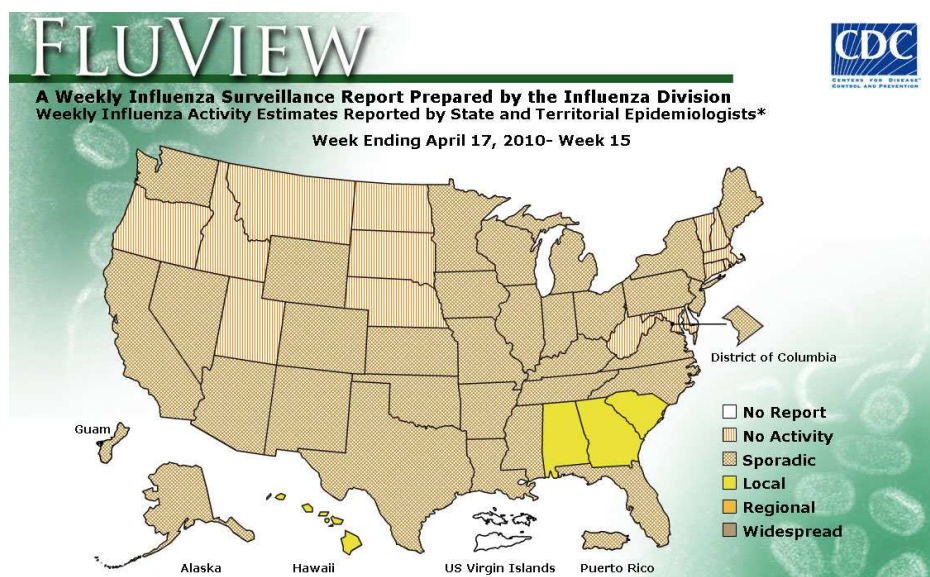
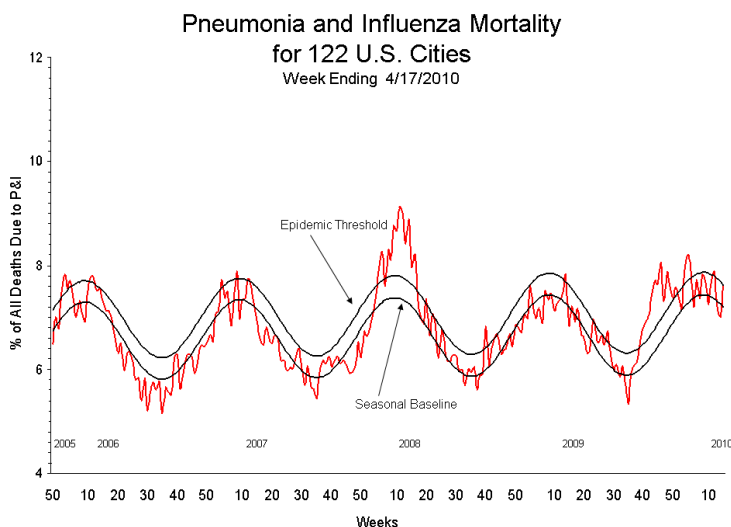
**Influenza-Associated Pediatric Mortality (as of April 29):** Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

\*\*\*CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at [http://www.michigan.gov/documents/mdch/ME\\_pediatric\\_influenza\\_guidance\\_v2\\_214270\\_7.pdf](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of April 29):** Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and three outbreaks associated with positive influenza A tests (2C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 2 long term care facilities. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SW) in February.

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S - 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

**National (CDC [edited], April 23):** During week 15 (April 11-17, 2010), influenza activity decreased in the U.S. 37 (2.1%) specimens tested by U.S. World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. All 20 subtyped influenza A viruses were 2009 influenza A (H1N1). The proportion of deaths attributed to pneumonia and influenza (P&I) was at the epidemic threshold. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.1%, which is below the national baseline of 2.3%. All 10 regions reported ILI below region-specific baseline levels. No states reported widespread or regional influenza activity. Four states reported local influenza activity. The District of Columbia, Guam, Puerto Rico, and 31 states reported sporadic influenza activity. 14 states reported no influenza activity, and the U.S. Virgin Islands and one state did not report.



**International (WHO pandemic update 97 [edited], April 23):** Currently the most active areas of transmission of pandemic influenza are in parts of West and Central Africa but transmission is also still occurring in South East Asia, and Central America. Pandemic influenza activity remains low in much of the temperate zone of both the northern and southern hemispheres. Seasonal influenza type B viruses have been increasingly detected over a larger area and are now the predominant circulating influenza viruses across East Asia, Central Africa and Northern and Eastern Europe. Very small numbers of type B viruses have also recently been detected in Central America. Seasonal influenza H3N2 is still being detected in South and Southeast Asia (mainly Indonesia), as well as sporadically in several countries of West Africa, and Eastern Europe.

In Europe, most countries reported a low intensity of respiratory diseases with only 6.8% of respiratory specimens testing positive for influenza. This week the total number of influenza B virus detections continued to exceed that of influenza A, as in recent weeks, although at low levels. Of note, some sporadic detections of seasonal H1N1 and H3N2 viruses were reported in Eastern Europe.

In East Asia, very few pandemic influenza viruses are being detected. In China, Mongolia, and Republic of Korea most influenza like illness (ILI) cases are now due primarily to influenza type B viruses. In China, overall influenza activity continues to decline and no pandemic influenza virus was detected this week. In Mongolia, influenza type B virus continues to circulate but is declining since a recent peak. An increased trend of respiratory disease activity associated with increasing circulation of influenza type B viruses has been reported in the Republic of Korea during the past few weeks. Small numbers of seasonal influenza H1N1 and H3N2 viruses continue to be sporadically reported in some countries of the region.

In South and Southeast Asia, the most active areas of transmissions of pandemic influenza are in Malaysia, Singapore, and Thailand. Although pandemic influenza virus is the predominant circulating influenza virus in the region, influenza H3N2 and influenza type B continue to co-circulate in Singapore and Thailand and Indonesia. In Singapore, rates of influenza-like illness (ILI) and acute respiratory infections (ARI) increased compared to previous week but are still below the epidemic threshold. In Indonesia, in contrast to other countries of the area, the predominant virus circulating continues to be influenza H3N2, with few detections of influenza type B and pandemic influenza viruses. In Malaysia, an increase in the number of respiratory disease consultations due to influenza-like-illness (ILI) was reported in the majority of the states compared to previous week. In Bangladesh, a small but slightly increased (compared to the previous week) numbers of pandemic influenza cases continues to be detected.

Limited available data from North Africa suggests that respiratory disease activity there remains low. In sub-Saharan Africa, available data suggests ongoing community transmission of pandemic influenza virus in West Africa. Transmission appears to have peaked in Senegal in February but Ghana continues to have active, though decreasing, transmission. Cote d'Ivoire and Niger reported increasing trends of respiratory disease activity but no virological data were available. In central Africa, low levels of pandemic influenza activity continue to be reported in Cameroon. In addition, small numbers of seasonal influenza H3N2 virus detections were reported by Angola. In eastern Africa, pandemic influenza virus continues to be detected in declining numbers in Rwanda with persistent reporting of small numbers of seasonal influenza H3N2 in Rwanda and Kenya. No increase in respiratory disease activity or detections of pandemic influenza viruses have yet been noted in Southern Africa. Influenza type B has been increasingly detected in some countries of central Africa.

In the tropical zone of the Americas, Ecuador, El Salvador and Guatemala, reported increases in respiratory diseases activity. In Guatemala, the number of respiratory disease consultations increased 80% compared to the previous week. Of note, co-circulation of other respiratory viruses, including respiratory syncytial virus (RSV), parainfluenza, and adenovirus has been detected in addition to small numbers of pandemic influenza virus. In Mexico, during early April 2010, the sentinel surveillance system reported a 38.6% decrease in the number of influenza-like-illness (ILI) and severe acute respiratory illness (SARI) cases compared to the previous week.

In the temperate zone of the southern hemisphere, Chile reported regional increases in ILI activity for the past four weeks. While the national ILI levels remain below the epidemic threshold, in Los Lagos, Tarapacá, and in some southern regions, the ILI level is above epidemic threshold. For the most recent reporting week, 6.8% of sentinel surveillance samples tested positive for respiratory viruses. Of these, 52.9% for respiratory syncytial virus (RSV), 23.5% for adenovirus, and 11.8% were positive for pandemic influenza virus. In Australia and New Zealand, there is no evidence yet of the start of winter-time



community transmission of influenza viruses. Australia has had sporadic detections of pandemic H1N1 viruses and seasonal influenza type B viruses in low numbers.

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MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending April 24, 2010.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at [http://www.michigan.gov/mdch/0,1607,7-132-2940\\_2955\\_22779\\_40563-125027--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html).

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### ***Novel Influenza Activity and Other News***

**WHO Pandemic Phase:** Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

**National, Research (St. Jude Children's Research Hospital, April 23):** New evidence shows immunization against "swine flu" in 1976 might provide individuals with some protection against the 2009 pandemic H1N1 influenza virus, according to new research from St. Jude investigators.

Researchers found that individuals who reported receiving the 1976 vaccine mounted an enhanced immune response against both the 2009 pandemic H1N1 virus and a different H1N1 flu strain that circulated during the 2008-09 flu season. The work appears in the April 23 online issue of the journal *Clinical Infectious Diseases*.

"Our research shows that while immunity among those vaccinated in 1976 has waned somewhat, they mounted a much stronger immune response against the current pandemic H1N1 strain than others who did not receive the 1976 vaccine," said Jonathan A. McCullers, M.D., an associate member of the St. Jude Infectious Diseases Department and the study's lead author.

McCullers said it is unclear if the response was enough to protect against the 2009 H1N1 virus, but the study points to a lingering benefit. The findings also raise hope that those vaccinated against the 2009 H1N1 pandemic strain might also enjoy a similar long-term advantage.

The study is the first to focus on whether those vaccinated against the 1976 H1N1 strain made antibodies against the 2009 pandemic flu, including antibodies that could block the virus from infecting cells. This research follows an earlier study from the federal Centers for Disease Control and Prevention that reported blood taken from volunteers shortly after they were vaccinated in 1976 and stored for decades also showed a strong immune response to the 2009 pandemic virus. Investigators noted the results might not reflect the immune response those same volunteers would mount today.

The latest effort involved 116 St. Jude employees and spouses age 55 and older. The group included 46 vaccinated in 1976 against the H1N1 flu virus, known as A/New Jersey/76, which sickened more than 200 military recruits in New Jersey. That outbreak triggered fears of a flu pandemic and led to a massive government effort to quickly produce and distribute a vaccine.

The current study was conducted in August 2009 before a vaccine was available against the pandemic H1N1 flu strain and before the virus was circulating widely in the Memphis, Tenn., metropolitan area, where study volunteers lived.

Researchers reported that nearly 90 percent of volunteers made antibodies able to recognize a key protein on the surface of both the 2009 pandemic and the 2008-09 H1N1 flu strains. Those antibodies were present in numbers large enough to meet one federal gauge of vaccine effectiveness.

Nineteen percent of volunteers also produced antibodies that neutralized the 2009 pandemic strain and blocked it from infecting cells. In comparison, more than 67 percent of volunteers had antibodies that neutralized the 2008-09 seasonal H1N1 strain.

Those vaccinated in 1976 were more likely to make neutralizing antibodies against the new pandemic strain. More than 17 percent of the 1976-vaccine group made such antibodies in large quantities. Only about 4 percent of those who had not received the 1976 shot had comparable levels of antibody production. The difference between the two groups was statistically significant, meaning it was unlikely chance alone explained the result.

The work reflects ongoing efforts to understand why the current pandemic flu has taken a greater toll on children and young adults than on those ages 65 and older. In this study, researchers focused on older individuals to better gauge the impact of the 1976 "swine flu" shot or possible childhood exposure to flu viruses similar to the current pandemic strain. McCullers said those viruses last circulated in the 1930s and 1940s.

The unexpectedly robust immune response mounted by all the volunteers suggests that routine vaccination against seasonal flu might confer a broader-than- realized protection, McCullers said. The St. Jude volunteers included many health care workers who are vaccinated annually against flu.

**Michigan Wild Bird Surveillance (USDA, as of April 29):** For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 111 Michigan samples tested to date, including 58 live wild birds, 39 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 19,709 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at <http://wildlifedisease.nbii.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

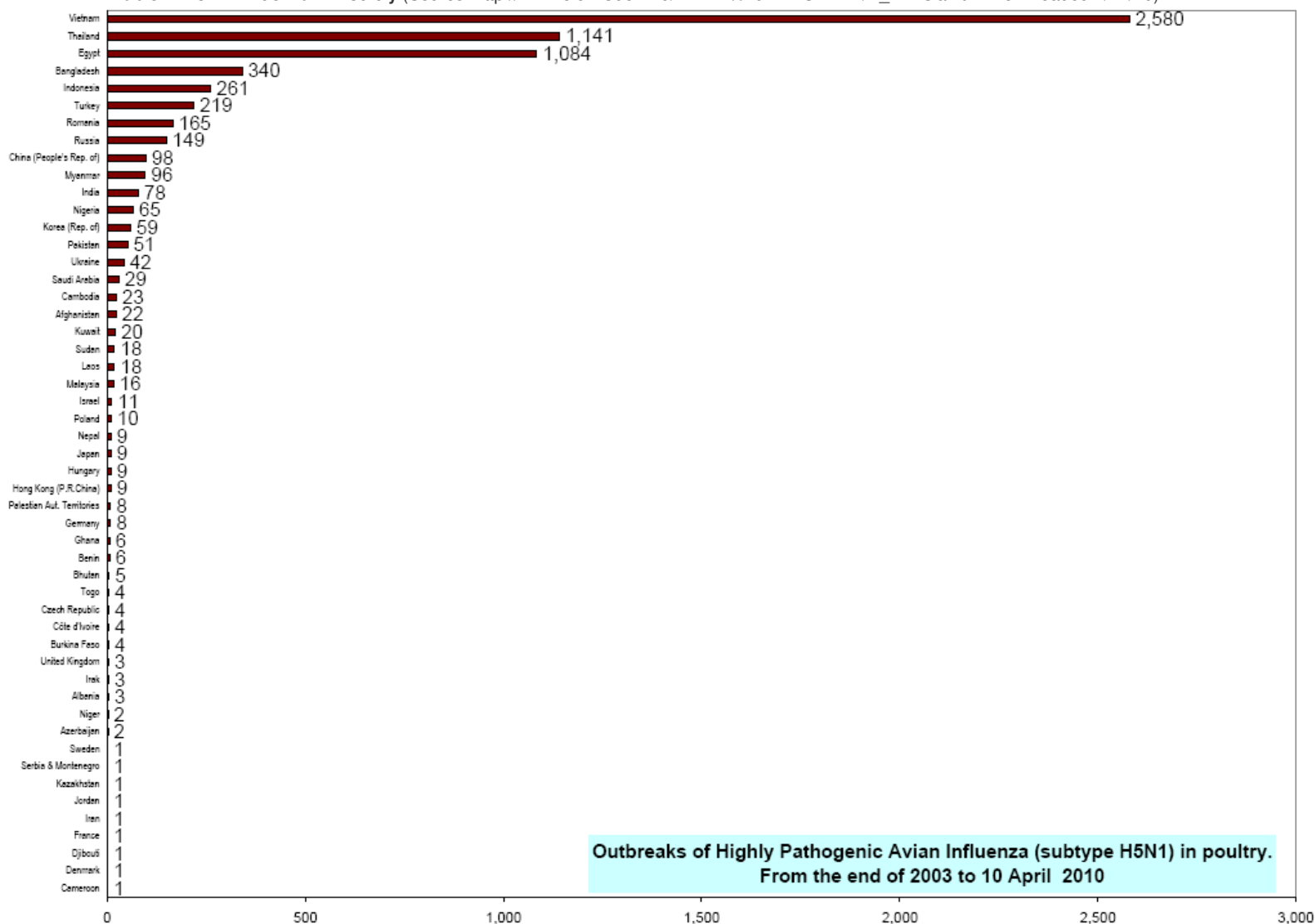
**Please contact Susan Peters at [PetersS1@Michigan.gov](mailto:PetersS1@Michigan.gov) with any questions regarding this newsletter or to be added to the weekly electronic mailing list.**

**Contributors**

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**Table 1. H5N1 Influenza in Poultry** (Source: [http://www.oie.int/downld/AVIAN%20INFLUENZA/A\\_AI-Asia.htm](http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm) Downloaded 4/12/10)



**Outbreaks of Highly Pathogenic Avian Influenza (subtype H5N1) in poultry.  
From the end of 2003 to 10 April 2010**

**Table 2. H5N1 Influenza in Humans - Cases up to April 21, 2010.** [http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2010\\_04\\_21/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_04_21/en/index.html). Downloaded 4/22/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	0	0	9	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	0	0	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	19	7	109	34
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	1	1	163	135
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	27	10	495	292